

Application No. 10/811,249
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Remarks

Support for the above-requested amendments to claim 1 is found at least in paragraphs [0001], [0013], and [0019]. Claim 5 has been amended to clarify the preform mold. Support for the amendments to claims 11 and 13 is found at least in paragraphs [0014] and [0028]. Claims 17 – 20 have been canceled without prejudice because they were drawn to a non-elected invention. No question of new matter arises and entry of the amendments is respectfully requested.

Claims 1 – 16 are before the Office for consideration.

Rejection under 35 U.S.C. §102(b)

The Office has rejected claim 11 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent Publication No. 2001/0011780 to Knutsson ("Knutsson"). In particular, the Office asserts that Knutsson teaches a method of forming a preform that includes placing a binder on internal walls of a preform mold, adding continuous glass strands to the preform mold, and curing the binder to bond glass fibers positioned adjacent to the internal walls and form the preform. It is also asserted that the bonded glass fibers form an encapsulating shell of bound glass fibers surrounding unbound glass fibers within the preform.

In response to this rejection, Applicants respectfully direct the Office's attention to the amendments made to claim 11 and submit that independent claim 11, as amended, defines a method of forming a preform that is not taught within Knutsson. Knutsson teaches preforms formed of continuous glass fiber strands that are used as sound deadening materials in engine exhaust mufflers. (*See, e.g.*, Abstract). The process used to form a preform includes feeding continuous glass fiber strands into a cavity that is made of perforated shells that have the shape of the muffler to be filled. (*See, e.g.*, paragraphs [0005] and [0018]). Air

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blown in through a nozzle in the perforated preform shell blows apart and entangles the glass strands to form a wool like product. (*See, e.g.*, paragraph [0018] and claim 3). A powder binder is added with the continuous glass fibers through the nozzle. (*See, e.g.*, paragraphs [0005] and [0018] and claims 1 and 2). The binder is any thermoplastic or thermoset resin that can be produced or reduced into a powder. (*See, e.g.*, paragraph [0014] and claim 6). After the binder and glass fibers have been inserted into the perforated shell, hot air is blown through the perforated shell to melt the binder and bond the glass fibers together. (*See, e.g.*, paragraphs [0005] and [0019] and claims 1 and 9). Cool or ambient air is then passed through the perforated shell to cool the preform and set the binder so that the preform can be removed and used. (*See, e.g.*, paragraphs [0005] and [0019] and claims 1 and 10.).

Applicant respectfully submits that, unlike the method claimed in claim 11, Knutsson specifically teaches the addition of a powdered binder with the continuous glass strands. As recited in amended claim 11, the binder is placed on the internal walls of a preform mold prior to the addition of the continuous glass fibers. Thus, the binder of the presently claimed method is not blown into the preform mold with the continuous glass fiber strands as taught by Knutsson. In addition, Applicant submits that blowing the binder into the preform shell with the glass strands as taught by Knutsson results in a distribution of the binder throughout the internal cavity of the preform. Further, heating the preform of Knutsson with such a distribution of binder throughout the preform cavity would result in the glass fibers binding to each other throughout the preform. As a result, the preform of Knutsson would not form an encapsulating shell of bound fibers surrounding unbound glass fibers as required in claim 11.

In order for a reference to be anticipatory, each and every element of the claimed invention must be found within the four corners of the cited reference. Because Knutsson does not teach placing the binder on the internal walls of a preform mold prior to the addition

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of the glass fibers or forming an encapsulating shell of bound glass fibers surrounding unbound glass fibers as required by claim 11, Applicants submit that Knutsson is not an anticipatory reference. Therefore, Applicants submit that claim 11 is not anticipated by Knutsson.

In view of the above, Applicant submits that claim 11 is not anticipated by Knutsson and respectfully requests reconsideration and withdrawal of this rejection.

Rejection under 35 U.S.C. §103(a)

The Office has rejected claims 1 – 10, 12, 13, 15, and 16 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Publication No. 2001/0011780 to Knutsson ("Knutsson") in view of U.S. Patent No. 5,317,037 to Golden *et al.* ("Golden"). In particular, the Office admits that Knutsson does not teach using sugar as the binder material. In this regard, Golden is cited as allegedly teaching the use of sugar as a glass binder for a forming a glass fiber composite. The Office concludes that it would have been obvious to one of ordinary skill in the art to use sugar as the binder in the method of Knutsson in order to produce a biodegradable material.

In response to this rejection, Applicant respectfully directs the Office's attention to independent claim 1 and submits that claim 1, as amended, defines a method of forming a muffler preform that is not taught or suggested within Knutsson and Golden, either alone or in combination. With respect to Knutsson, Applicant submits that the method of making the preform disclosed by Knutsson is discussed in detail above, and for purposes of brevity, will not be discussed in detail with respect to this rejection.

With respect to Golden, Golden discloses a melt-moldable composition that disintegrates in the presence of moisture and decomposes or degrades to produce components

that are inert or beneficial to the ground. (See, e.g., column 2, lines 24 – 27 and 48 – 52).

The composition can be shaped into useful articles that have a mechanical strength that is sufficient for its intended use (e.g., golf tees, golf pencils, and clay pigeons), but which allows the article to disintegrate and decompose after it is broken. (See, e.g., column 2, lines 28 – 32 and column 3, lines 11 – 21). The composition includes a binder that is preferably a natural substance such as sugar. (See, e.g., column 2, lines 56 – 60). Water or synthetic polymers may be used together with the natural binders and chemical additives may be added to accelerate the decomposition of the article. (See, e.g., column 2, lines 60 – 68 and column 3, lines 31 – 38). The composition further includes biodegradable reinforcing fibers, preferably cellulosic fibers from wood pulp, cotton, linen, viscose rayon, and sisal materials. (See, e.g., column 3, lines 39 – 42). Inorganic fibers such as wollastonite and glass fibers may also be employed in the composition. (See, e.g., column 2, line 55 and column 3, lines 44 – 45).

Initially, Applicant submits that there is no teaching or suggestion within Golden (or Knutsson) of utilizing sugar as a binder for a non-biodegradable article, such as a preform for a muffler. Golden specifically teaches that the principal object of the invention is to provide a melt-moldable composition of matter which can be shaped into useful articles that are biodegradable. (See, e.g., column 2, lines 24 – 27 and lines 48 – 52). Applicant respectfully submits that to evaluate the obviousness or non-obviousness of an invention, both the prior art reference(s) and the claimed invention as a whole must be considered. (See, e.g., *Manual of Patent Examining Procedure*, Patent Publishing, LLC, Eighth Ed., Rev. 3, August 2005, §2141.02 citing *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983) and *Schenck v. Nortron Corp.*, 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983)).

Therefore, although Golden teaches in a passing statement that inorganic fibers such as glass

fibers may be employed in a non-preferred embodiment, Golden as a whole teaches the use of the fibers and binder to form a biodegradable product. Moreover, the Abstract clearly states that the fibrous material used in Golden may be cellulose and/or mineral fibers which provide the attributes of reinforcement and degradability. One of ordinary skill in the art would simply not glean from the teachings of Golden to apply a sugar binder to glass fibers and form a muffler preform as recited in amended claim 1. If the muffler preform of claim 1 were to disintegrate, the sound deadening properties of the muffler would be lost and the invention would be rendered useless for its intended purpose.

In addition, Applicant submits that Golden teaches away from the method of forming a muffler preform as recited by amended claim 1. As taught by Golden at column 1, lines 34 – 36, “mineral fibers, such as glass and asbestos, have been used for many composites, but they are not biodegradable”. In addition, as discussed above, Golden teaches that the main object of the invention is to form a composition of matter that is both moldable and biodegradable. (See, e.g., column 2, lines 24 – 27). Applicant respectfully submits that these disclosures of Golden would lead one of skill in the art away from utilizing sugar as a binder in the preform of Knutsson, and as such, one of skill in the art would not arrive at the presently claimed invention in claim 1 based on the teachings of Golden.

Additionally, Applicants submit that there is no motivation for one of skill in the art to arrive at the invention currently recited in claim 1 based on the teachings the cited references. To establish a *prima facie* case of obviousness, there must be some motivation, either within the reference or in the knowledge of those of skill in the art, to modify the reference or combine the references’ teachings, there must be a reasonable expectation of success, and the prior art references must meet all of the claim limitations. (See, e.g., *Manual of Patent Examining Procedure*, Patent Publishing, LLC, Eighth Ed., Rev. 3, August 2005, §2142).

One of skill in the art simply would not be motivated to arrive at the presently claimed method of forming a preform for a muffler that includes feeding sugar and glass fibers into a preform mold having a predetermined shape of a muffler, heating the preform mold to a temperature sufficient to melt the sugar so that the melted sugar adheres to the glass fibers and forms sugar-coated glass fibers, and cooling the preform mold to bind the sugar-coated glass fibers together and form the preform as claimed in amended claim 1. Golden specifically teaches the use of sugar in forming a biodegradable product and Knutsson is silent as to the use of sugar as a binder. Without some teaching or suggestion, there can be no motivation, and without motivation, there can be no *prima facie* case of obviousness.

In view of the above, Applicant respectfully submits that claim 1 is non-obvious and patentable over the cited references. Because claims 2 – 10 are either directly or indirectly dependent upon claim 1, which, as discussed above, is not taught or suggested by Knutsson and Golden, either alone or in combination, Applicant submits that claims 2 – 10 are also not taught or suggested by the combination of Knutsson and Golden.

With respect to the Office's rejection of claims 12, 13, 15, and 16, Applicant respectfully directs the Office's attention to the amendments made above to claim 11 and submits that amended claim 11 defines a method of forming a preform that that is not taught or suggested by Knutsson and/or Golden. In particular, Knutsson does not teach or suggest a method of forming a preform as claimed in amended claim 11. As recited in claim 11, a binder is placed on the internal walls of a preform mold prior to the addition of the continuous glass fibers. Knutsson specifically teaches the addition of a powdered binder with the continuous glass strands. Thus, Knutsson does not teach or suggest the separate addition of a binder prior to the addition of the glass fibers as claimed in the present invention. In

fact, Knutsson teaches away from placing a binder on the internal walls of a preform mold prior to the addition of the continuous glass fibers as claimed in claim 11.

In addition, Knutsson does not teach or suggest forming an encapsulating shell of bound glass fibers surrounding unbound glass fibers as claimed in claim 11. Applicant submits that blowing the binder into the preform shell with the glass strands as taught by Knutsson results in a distribution of the binder throughout the internal cavity of the preform. Heating the preform of Knutsson with such a distribution of binder would result in the glass fibers binding to each other throughout the preform. As a result, it is respectfully submitted that the preform of Knutsson would not form an encapsulating shell of bound fibers surrounding unbound glass fibers as required in claim 11.

Further, Applicant submits that there is no motivation for one of skill in the art to arrive at the invention currently recited in claim 11 based on the teachings of Knutsson. As discussed above, in order to establish a *prima facie* case of obviousness, there must be some motivation, either within the reference or in the knowledge of those of skill in the art, to modify the reference or combine the references' teachings, there must be a reasonable expectation of success, and the prior art references must meet all of the claim limitations. There is simply no motivation for one of skill in the art to arrive at the invention recited in claim 11, namely, a method of forming a preform that includes placing a binder on internal walls of a preform mold prior to the addition of continuous glass strands, adding the continuous glass strands to the preform mold, and curing the binder to bond glass fibers positioned adjacent to the internal walls together where the bonded glass fibers form an encapsulating shell surrounding unbound glass fibers within the preform based on the disclosure set forth in Knutsson.

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Additionally, Applicant submits that Golden adds nothing to the teachings of Knutsson to meet the features of the invention set forth in amended independent claim 11. Golden is silent as to the placement of a binder on a preform shell prior to adding continuous glass fibers to form a preform. Therefore, Applicant respectfully submits that amended claim 11 is patentably distinguishable over Knutsson and Golden, either alone or in combination. Because claims 12, 13, 15, and 16 are dependent upon claim 11, which, as discussed above, is not taught within the cited references, either alone or in combination, claims 12, 13, 15, and 16 are also submitted to be non-obvious and patentable.

In view of the above, Applicant submits that claims 1 – 10, 12, 13, 15, and 16 are not obvious over Knutsson and/or Golden and respectfully request that this rejection be reconsidered and withdrawn.

Rejection under 35 U.S.C. §103(a)

The Office has rejected claim 14 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Publication No. 2001/0011780 to Knutsson ("Knutsson") in view of U.S. Patent No. 5,317,037 to Golden *et al.* ("Golden") and further in view of U.S. Patent No. 6,319,444 to Kirk ("Kirk"). The Office asserts that Knutsson and Golden teach the method of the present invention including the use of sugar as a binder but does not teach heating the preform mold prior to placing a binder material on the internal walls of the preform mold. Kirk is cited as assertedly disclosing preheating a preform mold prior to the molding process. The Office concludes that it would have been obvious to use the teachings of Kirk in the method of Knutsson in view of the teachings of Golden to reduce the wait time required to heat the mold.

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For the reasons given above with respect to the rejection of claims 12, 13, 15, and 16 under 35 U.S.C. §103(a) over Knutsson in view of Golden, Applicant submits that these claims are not obvious over Knutsson in view of Golden, and further in view of Kirk. In particular, Applicant submits that Knutsson neither teaches nor suggests a method of forming a preform that includes placing a binder on internal walls of a preform mold prior to the addition of continuous glass strands, adding the continuous glass strands to the preform mold, and curing the binder to bond glass fibers positioned adjacent to the internal wall together where the bonded glass fibers form an encapsulating shell surrounding unbound glass fibers within the preform. Additionally, Applicant submits that neither Golden nor Kirk adds to the teachings of Knutsson to meet the features of the invention set forth in amended independent claim 11 to render claim 11 patentable. Therefore, Applicant respectfully submits that amended independent claim 11 is patentably distinguishable over Knutsson in view of Golden and further in view of Kirk. Because claim 14 depends from claim 11, which is neither taught nor suggested by Knutsson, as discussed above, and because neither Golden nor Kirk make up for the deficiencies of Knutsson, claim 14 is submitted to be non-obvious and patentable.

In view of the above, Applicant submits that claim 14 is not obvious over Knutsson in view of Golden and further in view of Kirk and respectfully request reconsideration and withdrawal of this rejection.

Conclusion

In light of the above, Applicant believes that this application is now in condition for allowance and therefore requests favorable consideration.


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If any points remain in issue which the Office feels may be best resolved through a personal or telephone interview, the Office is kindly requested to contact the undersigned at the telephone number listed below.

If necessary, the Commissioner is hereby authorized to charge payment or credit any overpayment to Deposit Account No. 50-0568 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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